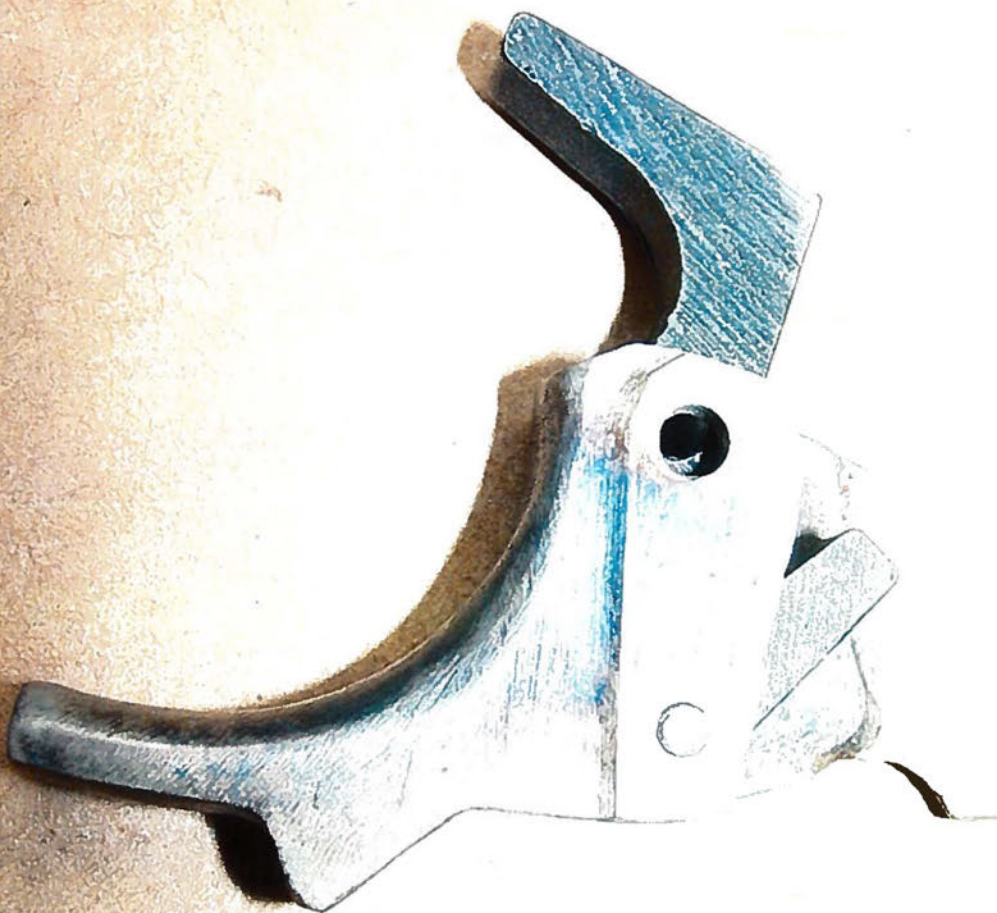


# **VOLUME 9**









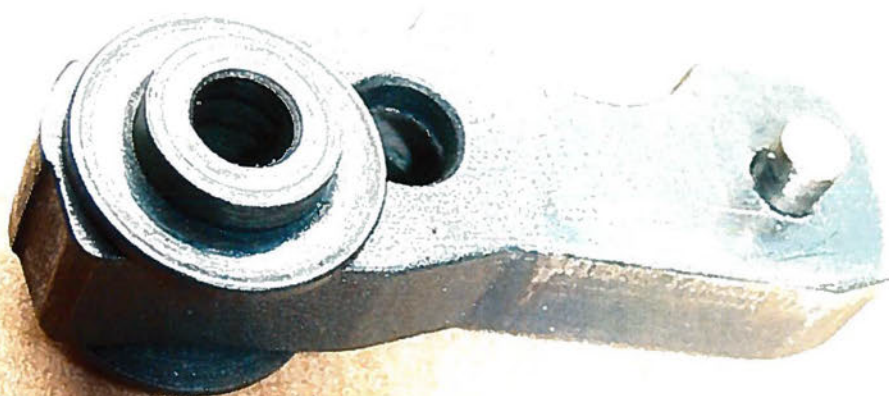






ATF 0606







**DEPARTMENT OF THE TREASURY**  
**BUREAU OF ALCOHOL, TOBACCO AND FIREARMS**  
**CORRESPONDENCE APPROVAL AND CLEARANCE**

903050:RDC  
 3311/2005-561



Dear [REDACTED]:

This refers to your letter of July 16, 2005, to the Firearms Technology Branch (FTB), Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF), regarding the classification of a submitted Ruger, Model 10/22; .22 caliber semiautomatic rifle; serial number 121-56665; with installed [REDACTED] device.

As you are aware, the **National Firearms Act (NFA)**, 26 U.S.C. § 5845(b), defines the term "**machinegun**" as follows:

*...any weapon which shoots, is designed to shoot, or can be readily restored to shoot, automatically more than one shot, without manual reloading, by a single function of the trigger. This term shall also include the frame or receiver of any such weapon, any part designed and intended solely and exclusively, or combination of parts designed and intended, for use in converting a weapon into a machinegun, and any combination of parts from which a machinegun can be assembled if such parts are in the possession or under the control of a person.*

Examination of the submitted firearm by FTB revealed that it had been modified by the installation of a replacement trigger and sear mechanism. The trigger is approximately 1.993 inches (51mm) in height, having a raised shoulder on the right side. Further, an angled cut is present on the forward edge of this shoulder. The sear mechanism has been made from a folded and formed piece of metal approximately .675 inch (17mm) x .310 inch (8mm) x .444 inch (11.5mm). It is secured within the trigger group by the magazine latch/ejector pivot pin. A wire spring (looped around the hammer crosspin) applies vertical pressure to the sear. Also, a metal pin approximately .437 inch (11mm) x .128 inch (3mm) has been installed through the top area of the hammer. The purpose of this pin was not determined.

	INITIATOR	REVIEWER	REVIEWER	REVIEWER	REVIEWER	REVIEWER	REVIEWER
CODE	903050	903050	903050	903050			
SURNAME	<i>[Signature]</i>	<i>Mantz</i>	<i>[Signature]</i>	<i>Nixon</i>			
DATE	<i>8/25/05</i>	<i>8-25-05</i>	<i>8/26/05</i>	<i>8/28/05</i>			



**DEPARTMENT OF THE TREASURY**  
**BUREAU OF ALCOHOL, TOBACCO AND FIREARMS**  
**CORRESPONDENCE APPROVAL AND CLEARANCE**

-2-

[REDACTED]

The FTB evaluation found that after the hammer is cocked and the trigger is pulled, the hammer is held in the cocked position by the tail of the sear resting against the angled cut in the raised shoulder of the trigger. The forward end of the sear is pivoted downward by the bolt as it moves forward. This pivoting motion, in turn, raises the tail of the sear out of the angled cut of the trigger. The trigger is then allowed to move sufficiently to release the hammer.

The redesigned function of the submitted Ruger 10/22 is atypical of conventional semiautomatic fire. However, because of the sear-released hammer, its design remains similar to that of a basic machinegun. To determine its functionality, FTB conducted a test-fire of the Ruger. During this testing, the firearm repeatedly malfunctioned. After the initial round of ammunition was discharged, the next round was chambered but failed to fire, even though the hammer had been released. Examination of the unfired cartridge revealed that the base of the cartridge had not been contacted by the firing pin.

Based upon this examination and test firing, FTB's findings were inconclusive. Therefore, we cannot at this time render a determination regarding the classification of the submitted Ruger 10/22 rifle. However, were a fully functioning model resubmitted, our Branch would undertake a further evaluation.

This rifle will be returned to you under separate cover. Please provide this office with a billable FedEx (or similar) account number in order that we may return the firearm to you.

We regret the lack of a definitive finding at this time, but trust the foregoing was responsive to your request for an evaluation.

Sincerely yours,

Sterling Nixon  
 Chief, Firearms Technology Branch

	INITIATOR	REVIEWER	REVIEWER	REVIEWER	REVIEWER	REVIEWER	REVIEWER
CODE	903050	903050	903050	903050			
SURNAME							
DATE							





U.S. Department of Justice

Bureau of Alcohol, Tobacco,  
Firearms and Explosives

Martinsburg, WV 25401  
www.atf.gov

903050:MCP  
3311/2006-578  
**APR 27 2006**

Dear [REDACTED]

This refers to your correspondence, including accompanying illustrations, and to a firearm sample, which were submitted to the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF), Firearms Technology Branch (FTB), and received March 30, 2006.

You submitted the firearm sample to us on behalf of [REDACTED]

Specifically, Mr. [REDACTED] has requested a classification of a submitted Ruger, Model 10/22, .22 caliber semiautomatic rifle, serial number 121-56665, with installed [REDACTED] trigger device. This is the second submission of this particular firearm and device. Because FTB could not render a determination regarding the classification of the submission during the initial examination in 2005 due to the firearm's malfunctioning, it was returned to [REDACTED] in [REDACTED]

The currently submitted firearm is a Ruger 10/22 semiautomatic rifle with a newly design firing mechanism. The firing mechanism is designed to function as follows, when the trigger is pulled:

- The hammer falls, thereby firing a shot.
- The hammer is recocked when the bolt comes to the rear.
- The trigger is forced (rotated) to the cocked (forward) position when the bolt comes to the rear; this is accomplished when the bolt actually contacts and pushes down on the top of the trigger.
- When the bolt travels forward, it contacts the trigger stop.
- The forward pressure of the bolt against the trigger stop pushes the latter forward, thereby unlocking the trigger.
- The continuous steady pressure on the trigger from the trigger pull causes the trigger to travel rearward and release the cocked hammer, causing a continuation of firing.
- When the firing finger is physically removed from the trigger, the weapon ceases firing. If the steady pressure of the trigger pull is not released, the weapon will continue to fire until the magazine is empty or a malfunction occurs.



-2-

[REDACTED]

As defined in the National Firearms Act (NFA), 26 U.S.C. Section 5845(b), the term “machinegun” means—

*...any weapon which shoots, is designed to shoot, or can be readily restored to shoot, automatically more than one shot, without manual reloading, by a single function of the trigger. The term shall also include the frame or receiver of any such weapon, any part designed and intended solely and exclusively, or combination of parts designed and intended, for use in converting a weapon into a machinegun, and any combination of parts from which a machinegun can be assembled if such parts are in the possession or under the control of a person.*

Our Branch test fired your submitted firearm with a variety of .22 long rifle caliber ammunition and found that it functioned consistently with CCI Stinger brand ammunition.

Based upon a careful review of your submitted sample and plans, including illustrations, FTB has determined that the submitted firearm is a “machinegun,” being capable of firing automatically with a single function of the trigger.

Specifically, the trigger device, being a combination of parts designed and intended for use in converting a Ruger 10/22 semiautomatic rifle into a machinegun, is a “machinegun” as defined in 26 U.S.C. 5845(b).

Our Branch reached this finding because it is evident that from the moment of the application of trigger pressure—and as long as rearward pressure is applied to the trigger—the firearm continues to fire until the firing finger is removed; this firing takes place regardless of the rearward bolt travel that pushes the trigger forward into the cocked position.

The shooter does not pull and release the trigger; therefore, FTB has determined this to be one single pull of the trigger which allows the rifle to continue to fire. Upon removing pressure on the trigger, the rifle ceases firing. Pressure is applied on the trigger and the rifle fires; unless the pressure from the trigger finger is removed, the rifle will continue to fire.

We have received your ATF Form 2, *Notice of Firearms Manufactured or Imported*, dated April 20, 2006, with regard to this particular firearm.

To facilitate return of the submitted sample, please provide our Branch with the appropriate billable FedEx or similar account number within 60 days of receipt of this letter.



-3-

[REDACTED]

We trust that the foregoing has been responsive to your request for an evaluation.

If we can be of any further assistance, please contact us.

Sincerely yours,

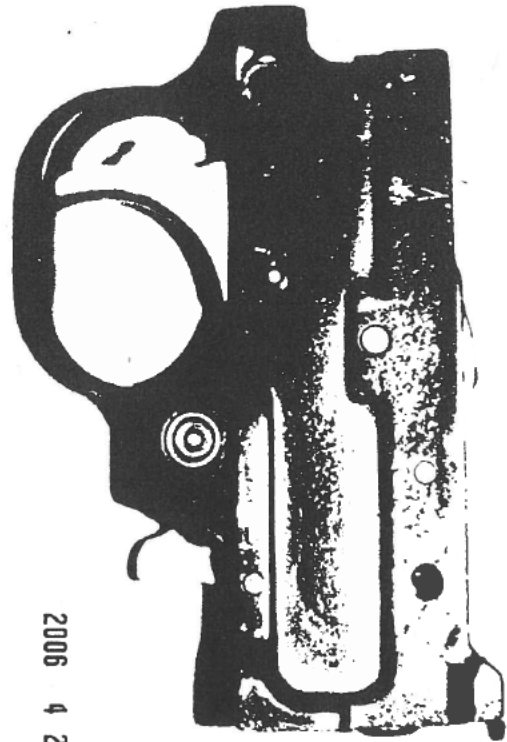
A handwritten signature in black ink, appearing to read "S. Nixon", with a stylized flourish extending to the right.

Sterling Nixon  
Chief, Firearms Technology Branch

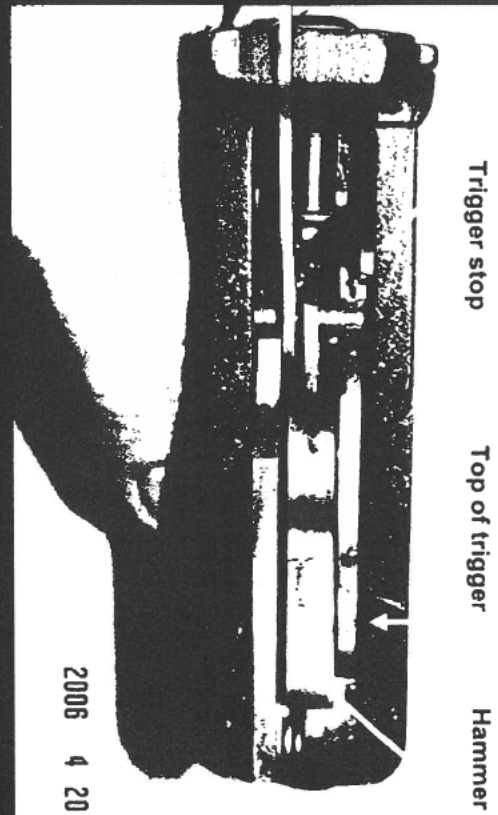
Enclosure



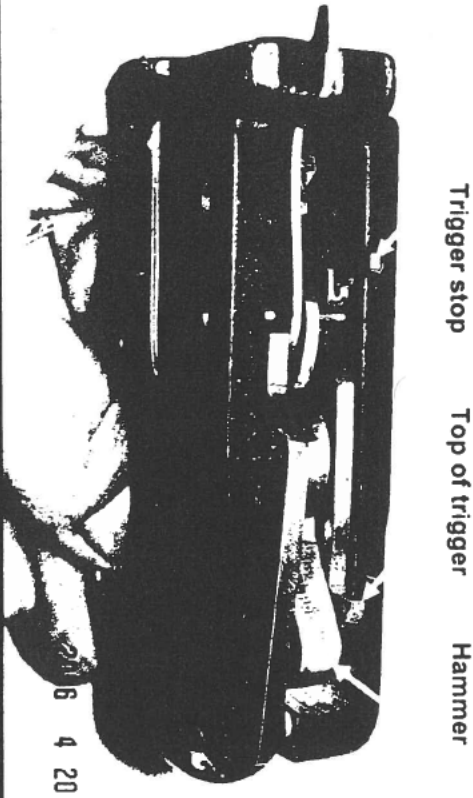
Enclosure 1



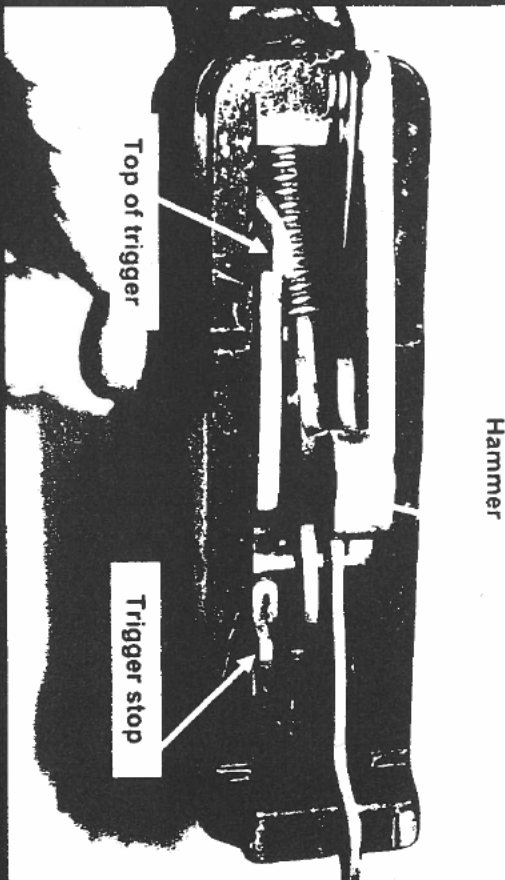
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2006 578 MP

MAR 30 2006

Attn: Sterling Nixon  
Bureau of Alcohol, Tobacco, Firearms and Explosives  
Firearms Technology Branch  
244 Needy Road  
Martinsburg, WV 25401

FFL: 9-93-009-07-8D-01150  
EIN: 35-2245832

Submission of firearm for evaluation by FTB

[REDACTED]

March 16, 2006

Sterling Nixon - Chief, Firearms Technology Branch  
Bureau of Alcohol, Tobacco, Firearms and Explosives  
Firearms Technology Branch  
244 Needy Road  
Martinsburg, WV 25401

Dear Mr. Nixon:

I would like to begin by saying thank you for your prompt response to my letter dated Sept. 18 asking the status of my rifle being tested. I received the rifle and a copy of your letter to [REDACTED] on Sept. I would also like to thank [REDACTED] for her help in coordinating the prompt return of my rifle through Federal Express.

After reviewing your letter to [REDACTED] (Dated Aug 29, 2005, 903050:RDC, 3311/2005-561) and the evaluation of my initial trigger design I feel I should give a detailed description of that design in areas of question. I will list the each paragraph of the evaluation and follow with an explanation.

Paragraph One:

***Examination of the submitted firearm by FTB revealed that it had been modified by the installation of a replacement trigger and sear mechanism. The trigger is approximately 1.993 inches (51mm) in height, having a raised shoulder on the right side. Further, an angled cut is present on the forward edge of this shoulder. The sear mechanism has been made from a folded and formed piece of metal approximately .675 inch (17mm) x .310 inch (8mm) x .444 inch (11.5mm). It is secured within the trigger group by the magazine latch/ejector pivot pin. A wire spring (looped around the hammer crosspin) applies vertical pressure to the sear. Also, a metal pin approximately .437 inch (11mm) x .128 inch (3mm) has been installed through the top area of the hammer. The purpose of this pin was not determined.***

My original trigger modification did include a new trigger, but did not include a new sear mechanism. The trigger is similar to Ruger's original trigger. It differs in that it has a lug that projects upward from the right flange and it is made from steel instead of aluminum. See Figure 1 for a comparison.

[REDACTED]

[REDACTED]

FFL: 9-93-009-07-8D-01150  
EIN: 35-2245832

[REDACTED]

3-19-06



[REDACTED]

March 16, 2006

Sterling Nixon - Chief, Firearms Technology Branch  
Bureau of Alcohol, Tobacco, Firearms and Explosives  
Firearms Technology Branch  
244 Needy Road  
Martinsburg, WV 25401

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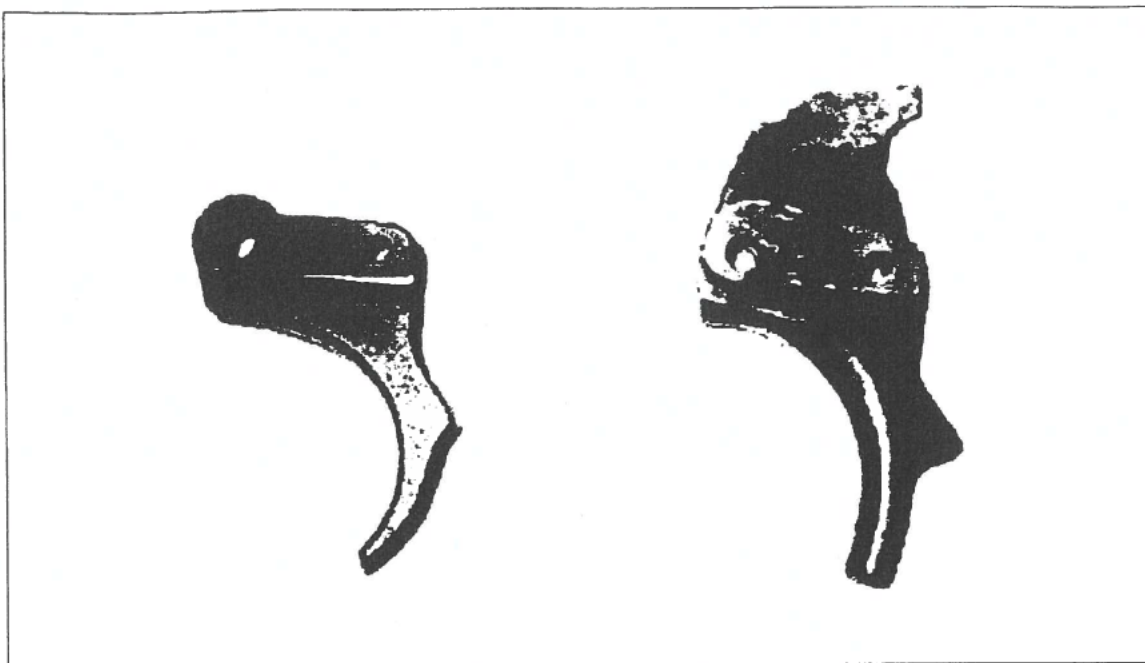
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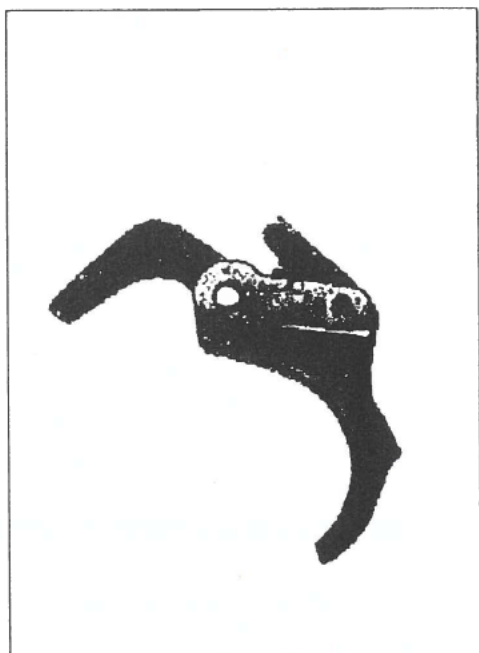
● Page 2

March 16, 2006



**Figure I - Ruger and Prototype Triggers**

Figure II showing the Ruger Trigger with the Ruger sear and disconnector installed. Figure III shows my original prototype trigger with the Ruger sear and disconnector installed.



**Figure II - Ruger Assembly**



**Figure III - Original Trigger Prototype Assembly**



● Page 3

March 16, 2006

If the first prototype trigger were installed in a Ruger trigger housing with the remaining stock trigger components, the trigger assembly would function just like a normal Ruger 10/22 trigger and retains the original trigger sear and disconnector functions.

The .675 inch (17mm) x .310 inch (8mm) x .444 inch (11.5mm) formed sheet metal component that was described as a "sear" is not intended to be a sear, but is a trigger stop mechanism. Figure IV shows the trigger stop.

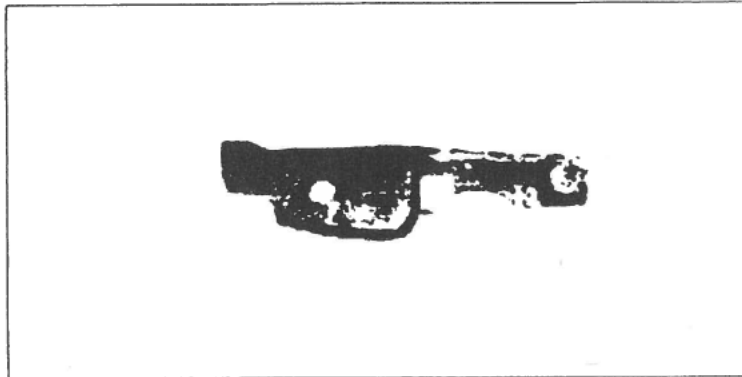
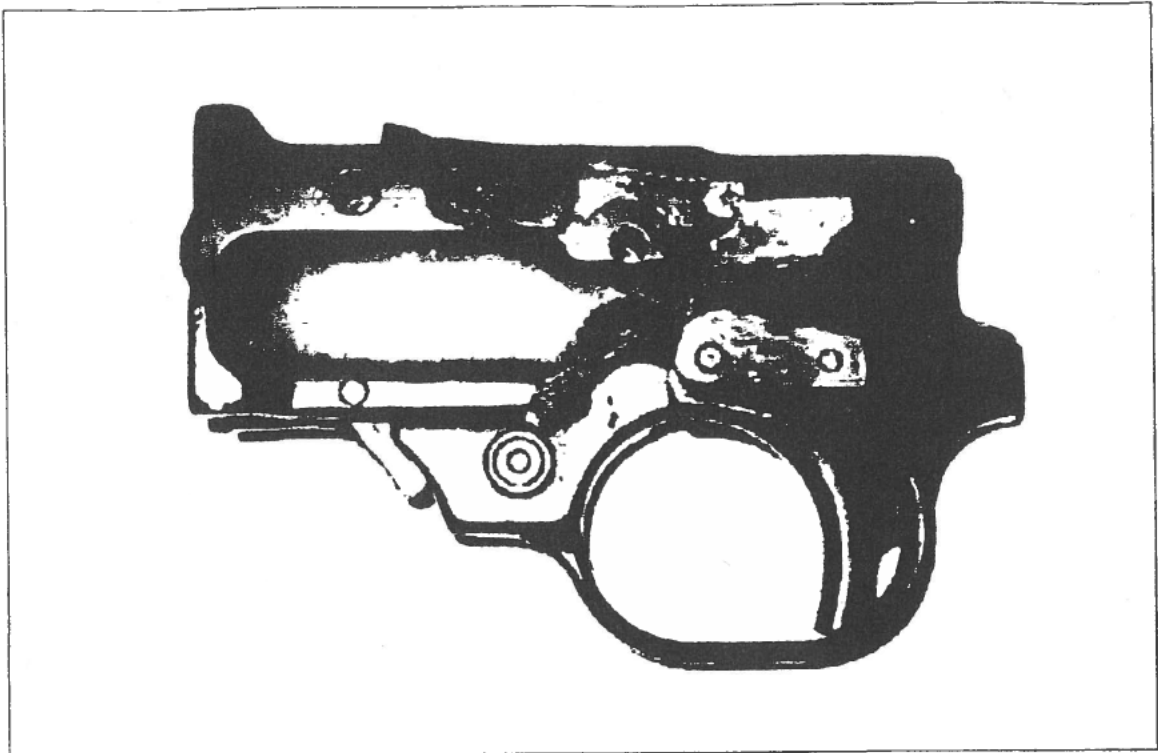


Figure IV - Trigger Stop

One Merriam-Webster's definition for sear is "the catch that holds the hammer of a gun's lock at cock or half cock". Since the trigger stop engages the trigger instead of the hammer, it in fact cannot be a sear by definition. This trigger adaptation does not require a new sear since the original Ruger sear and disconnector are used. The function of the trigger stop is to hold the trigger in the cocked position until the bolt has closed to a point where it is once again safe to fire the firearm. This is similar in function to trigger disconnector in a standard semi-automatic trigger system. Figure V shows the prototype trigger assembly and trigger stop in relation to each other, as they fit inside the trigger housing.

March 16, 2006

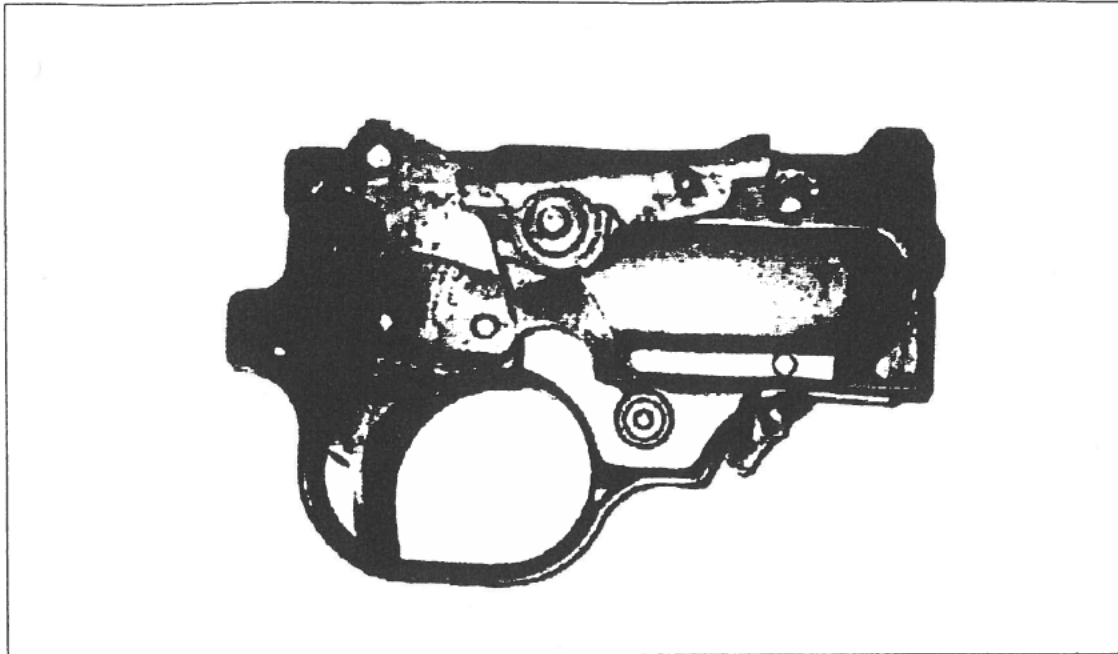


**Figure V – Prototype Trigger & Trigger Stop**

The wire spring is very similar to the original wire spring used by Ruger to hold down the bolt stop. It is just made of heavier wire and wound in the opposite direction. This allowed the new spring to perform a second function, put tension on the trigger stop.

The final question to answer is the function of the pin through the upper part of the hammer. Figure VI shows the prototype trigger, trigger stop, and hammer with crosspin in relation to one another when they are in the trigger housing.





**Figure VI - Trigger, Trigger Stop, & Hammer With Crosspin**

The crosspin on the hammer hangs over the back portion of the trigger lug. When the bolt pushes the hammer back, the crosspin pushes down on the trigger lug, rotating the trigger forward until the trigger stop rotates down and locks the trigger in place, in the cocked position. In fact the trigger cannot be moved, once the trigger stop has fallen in place until the bolt is nearly closed. As the bolt closes, it pushes down on the forward end of the trigger stop and rotates it out of engagement from the trigger, allowing the trigger to be pulled at any time.

Paragraph Two:

*The FTB evaluation found that after the hammer is cocked and the trigger is pulled, the hammer is held in the cocked position by the tail of the sear resting against the angled cut in the raised shoulder of the trigger. The forward end of the sear is pivoted downward by the bolt as it moves forward. This pivoting motion, in turn, raises the tail of the sear out of the angled cut of the trigger. The trigger is then allowed to move sufficiently to release the hammer.*

Since the original Ruger sear and disconnecter are used in the trigger I feel this description is not an accurate description of the "sear" function of the trigger mechanism. It is however an excellent account of the interaction of the bolt, trigger stop, and first prototype trigger.

Paragraph Three:

*The redesigned function of the submitted Ruger 10/22 is atypical of conventional semiautomatic fire. However, because of the sear-released hammer, its design remains similar to that of a basic machinegun. To determine its functionality, FTB conducted a test-fire of the Ruger. During this testing, the firearm repeatedly malfunctioned. After the initial round of ammunition was discharged, the next round was chambered but failed to fire, even though the hammer had been released. Examination of the unfired cartridge revealed that the base of the cartridge had not been contacted by the firing pin.*

Though I feel the prototype trigger system is a semi-automatic trigger system, having a trigger disconnecter, and requiring a single trigger function or separate rearward motion of the trigger for each round fired, I can understand how it might be seen as similar to a basic machinegun. That is the reason I sent in the system for review by FTB. That being said I believe I can explain the outcome of your test firing.

March 16, 2006

When the initial chambered round was discharged, pressure from the case moved the bolt back from battery, extracting and ejecting the empty case and cocking the hammer to its most rearward position. It should be noted that at this time the Ruger designed trigger/disconnector/sear interaction is working per the original design. As the hammer was rotated back, the crosspin through the top of the hammer pushed down on the top of the extended trigger lug, rotating the trigger to its cocked, ready to fire position. When the trigger reached the ready to fire position, the trigger stop rotated down and locked the trigger into the ready to fire position. Pressure from the recoil spring then pushed the bolt forward, stripping a fresh round from the magazine, and pushing it into the chamber. When the bolt reached the prescribed position on its forward travel, the trigger stop released the trigger. When the trigger was released the person or machine testing the gun pulled the trigger once again to the rear. When the trigger was pulled, the disconnector, which was now engaged to the sear (per the original Ruger design), rotated the sear out of engagement from the hammer allowing it to fall.

There are two probable reasons there was no mark on the rim of the fresh cartridge in the chamber when the gun misfired during your test firing:

- 1) The trigger stop released the trigger too soon. A measurement of the trigger stop showed it would release the trigger when the bolts approximately .155 inch from closing.
- 2) The bolt bounced off of the barrel breach face, rebounding from the closing force of the spring, causing the hammer to fall out of time with the bolt position.

This was a design oversight on my part. Due to legal considerations I had no opportunity to test fire the rifle prior to sending it in. I only had time to see that the components functioned as I intended by dry firing at [REDACTED] after the trigger stop was completed. I did not foresee that the point the trigger stop released the trigger would be so critical. Thank you for your thorough review, the misfire information was especially helpful.

Enclosed with this letter you will find Ruger Model 10-22 Carbine, serial number: 121-56665, one standard Ruger 10/22 magazine, and one .124 diameter X .500 long dummy pin. I have had these items shipped to you by [REDACTED] since they carry a Title II license, which protects me from possible legal issues (please note, the trigger stop, explained later in this letter was installed at [REDACTED] under their license). The magazine is provided for test firing the rifle. The dummy pin is to help with disassembly and assembly of the rifle trigger system. Installed in this rifle is an improved prototype of my "Resetting Trigger, Semi-Automatic Trigger System" and a modification to the action converting it to a "delayed blowback" action. The following will explain both additions.

The first modifications I will address are to the Trigger Housing itself. They include:

- An extra .125 diameter hole aft of the normal bolt stop/magazine release pin hole, shown in Figure VII.
- A new slot on the back left side of the trigger guard for holding a new trigger return spring, shown in Figure VII.
- A new slot on the right bottom of the trigger housing to accommodate the trigger latch, as shown in figure VIII.
- An enlargement of the original bolt stop slot on the left side of the trigger housing to accommodate the bolt delay link catch, shown in Figure VIII.
- A new slot in the back of the trigger housing to accommodate the bolt delay link, as shown in Figure IX.



March 16, 2006

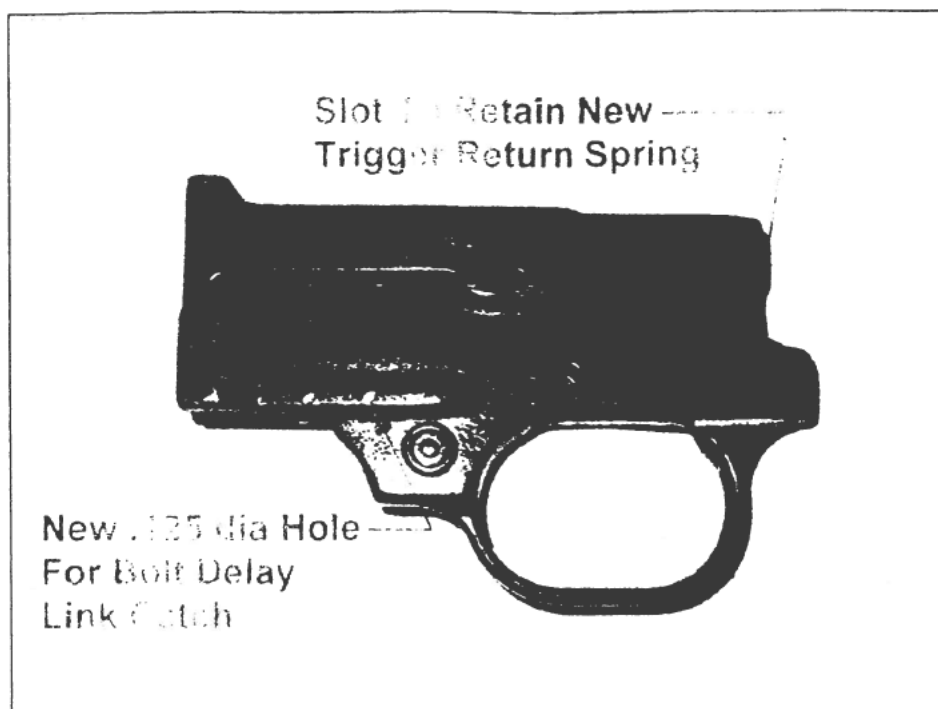


Figure VII - Left Side, Trigger Housing

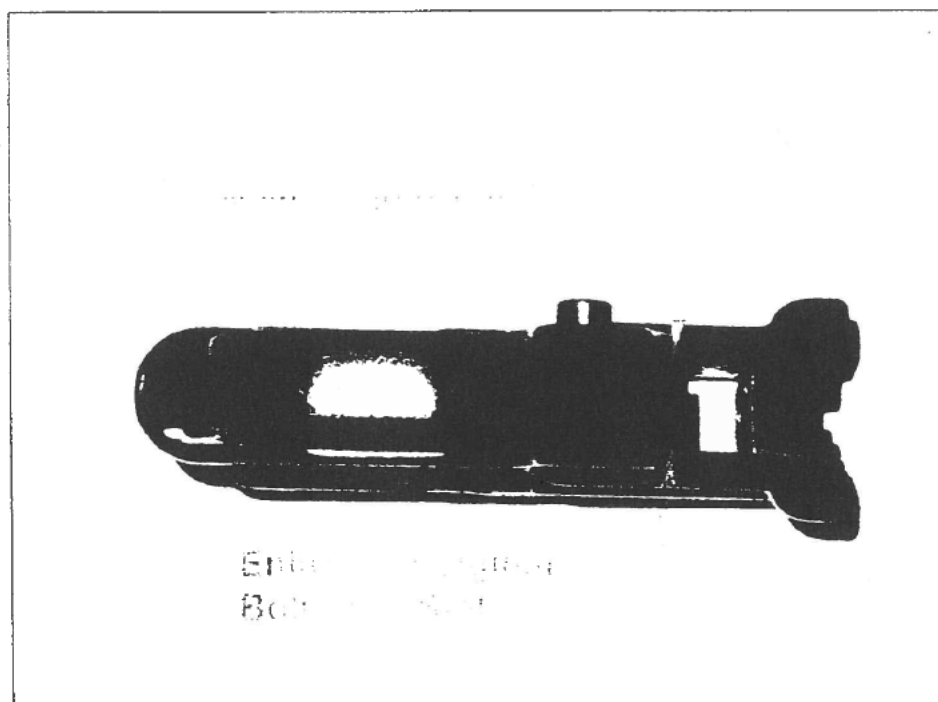


Figure VIII - Bottom, Trigger Housing

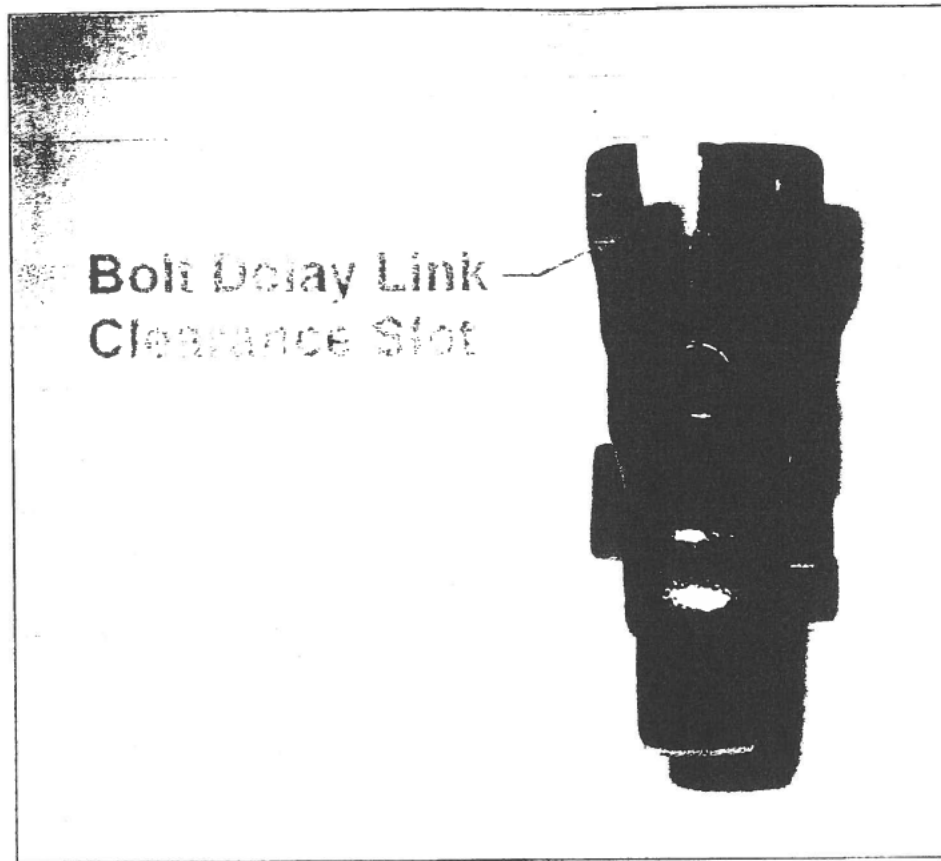


Figure IX - Back, Trigger Housing

The new delayed blowback system consists of the following components:

- A bolt delay link, Figure X.
- A bolt delay link catch, Figure XI.
- A new camming hammer, Figure XII.
- A modified left hammer bushing with a washer bonded to the left end, Figure XIII.
- A modified right hammer bushing shortened on the right end and with a washer that will ride on the right side of the hammer, Figure XIV.
- A bolt with the back left corner machined so it has an angled surface to engage the bolt delay link, Figure XV.
- A bolt delay link lifting spring, Figure XVI.
- A bolt delay link catch spring, Figure XVII.



• Page 9

March 16, 2006

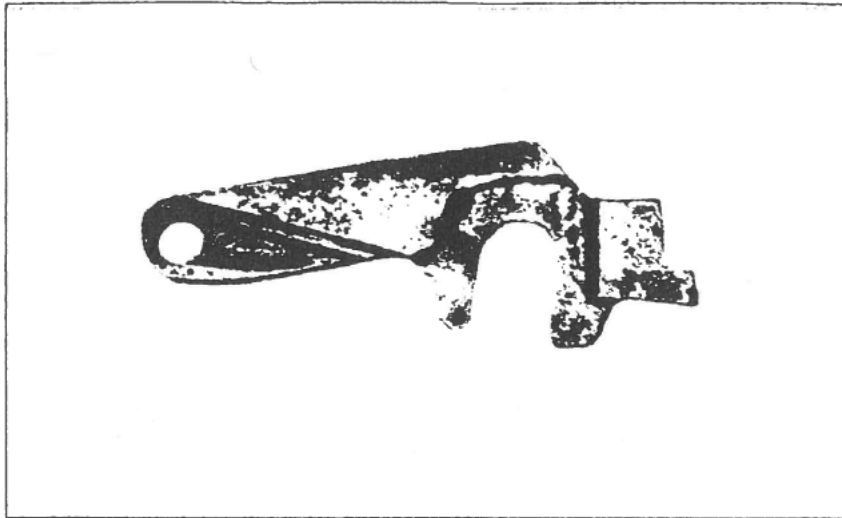


Figure X - Bolt Delay Link

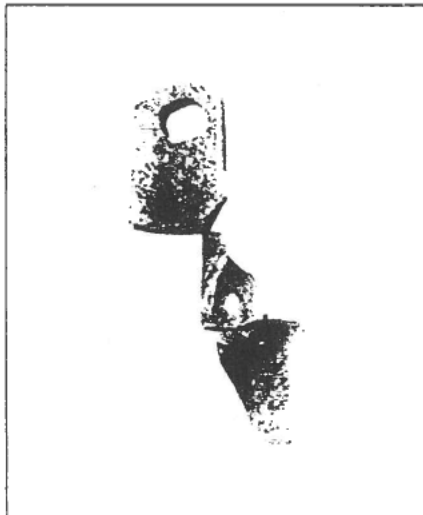


Figure XI - Bolt Delay Link Catch

March 16, 2006

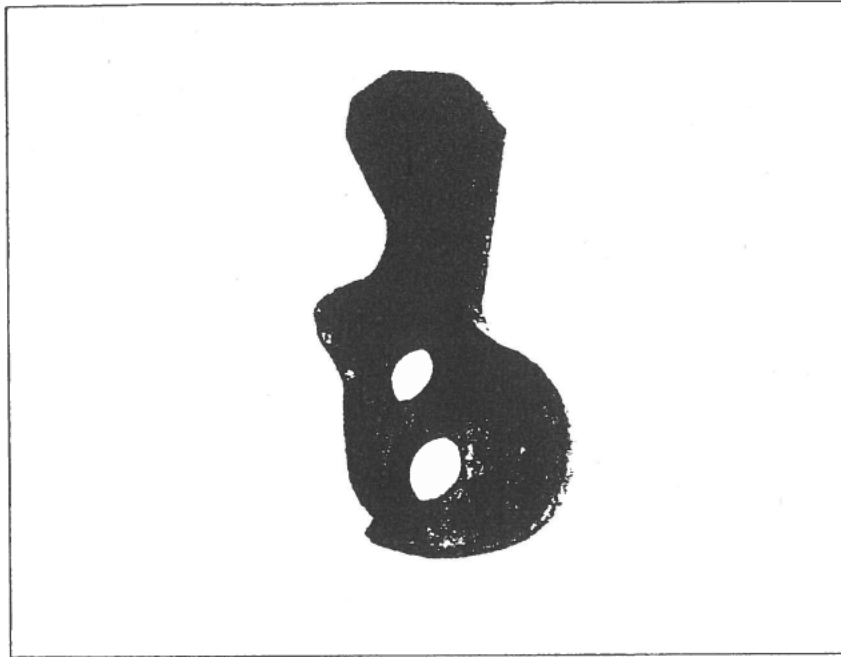


Figure XII - Camming Hammer

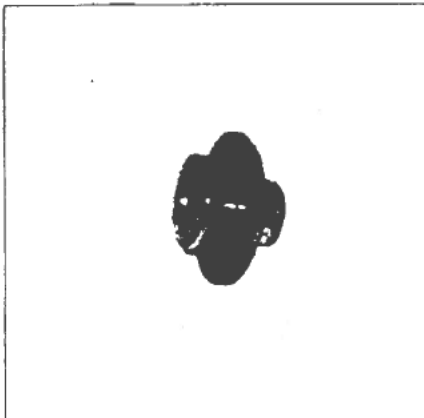


Figure XIII - Left Hammer Bushing

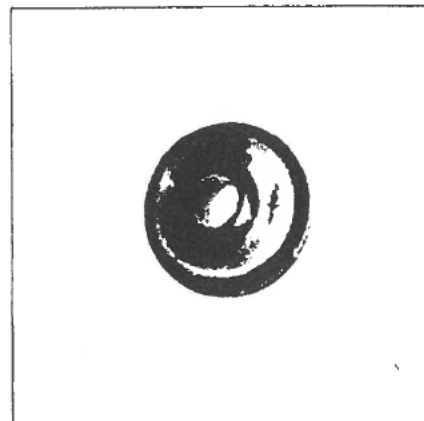
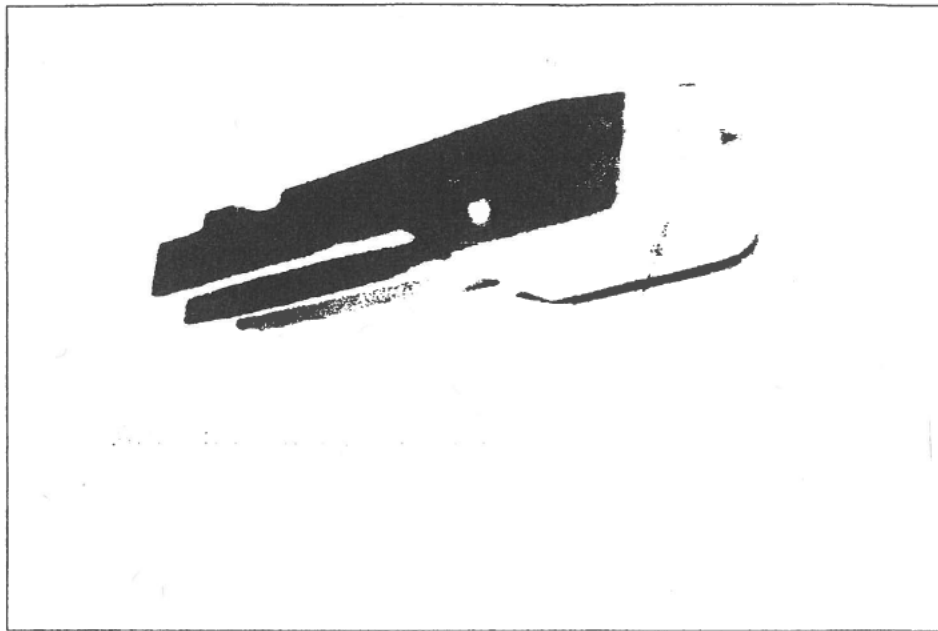
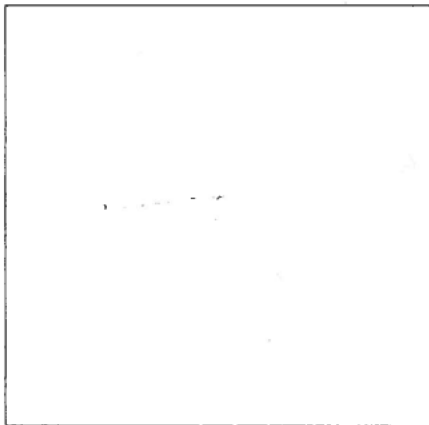


Figure XIV - Right Hammer Bushing

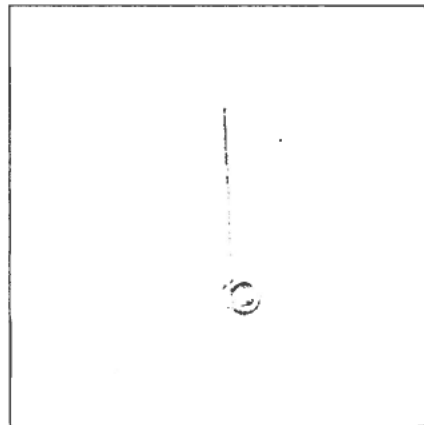




**Figure XV - Bolt Machined Back Left Corner**



**Figure XVI - Bolt Delay Link Lift Spring**



**Figure XVII - Bolt Delay Link Catch Spring**

When pinned in place in the trigger housing, the bolt delay link, bolt delay catch, and camming hammer are arranged as shown in Figure XVIII (pins and springs not shown for clarity).

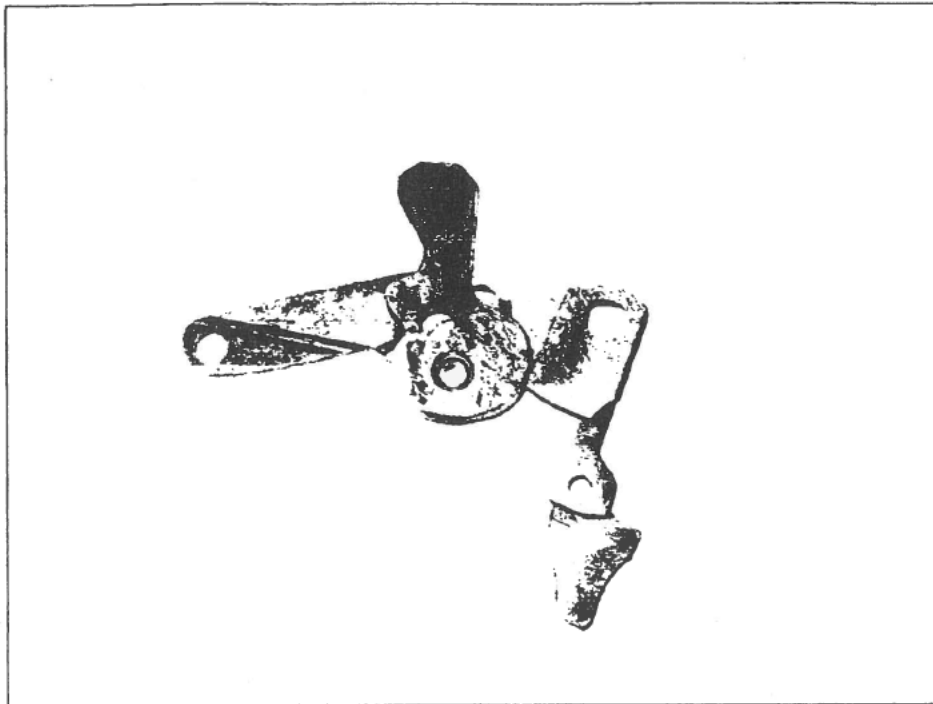


**Figure XVIII - Delayed Blowback, Locked Position**

The delayed blowback components are shown in their "bolt locked" position. In this position, the bolt delay link is supported in the rear by the rear trigger assembly retainer pin, through both the trigger housing and the receiver. The front of the bolt delay link is held up by the bolt delay link catch, which is supported by a pin through the trigger assembly housing and held under the end of the bolt delay link by the bolt delay link catch spring. The forward slanted surface of the bolt delay link is raised up behind the back left corner of the bolt, holding the bolt closed.

When the trigger is pulled, the hammer is rotated forward by the hammer spring. As it rotates forward, before striking the firing pin, the hammer's cam surface pushes the bolt delay link catch forward so it no longer supports the front of the bolt delay link, as shown in Figure XIX.

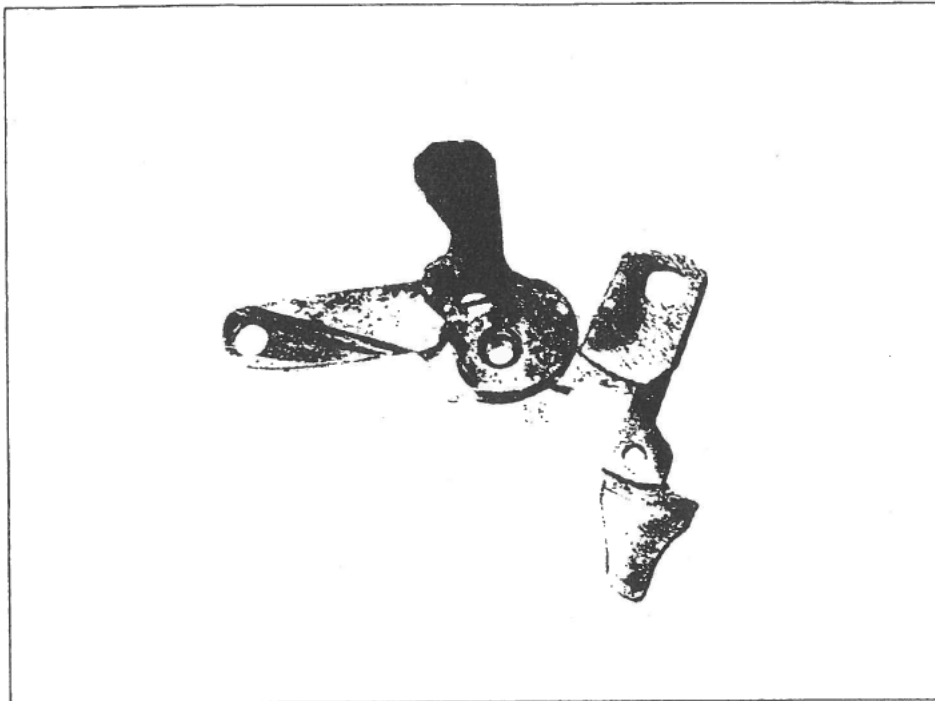




**Figure XIX - Hammer Opens Latch**

The hammer continues forward, striking the firing pin in the bolt, firing the round in the chamber. When the round is fired, the bolt is pushed back. The backward movement is resisted by the bolt spring and also by the bolt delay link, which is being pushed up by the bolt delay link spring. To move back the bolt must push down the bolt delay link, which delays the bolt, movement through spring tension and friction along a shared inclined plane between the bolt delay link and the back of the bolt. Once the bolt is pushed down, as shown in Figure XX, the bolt can continue its normal rearward travel as a reduce velocity.

March 16, 2006



**Figure XX - Delay Link Rotated Down**

When the bolt has reached its maximum rearward travel, it stops and is then moved forward by the bolt spring. When the bolt reaches its closed position, the bolt delay link rotates up under spring tension to hold the bolt closed and the bolt delay link catch rotates back under the forward end of the link under spring tension to lock the bolt closed, as previously shown in Figure XVIII (note, the hammer is also held back in the cocked position by normal sear function).

The bolt delay blowback system changes the operation of the action of the Ruger 10/22 in several ways:

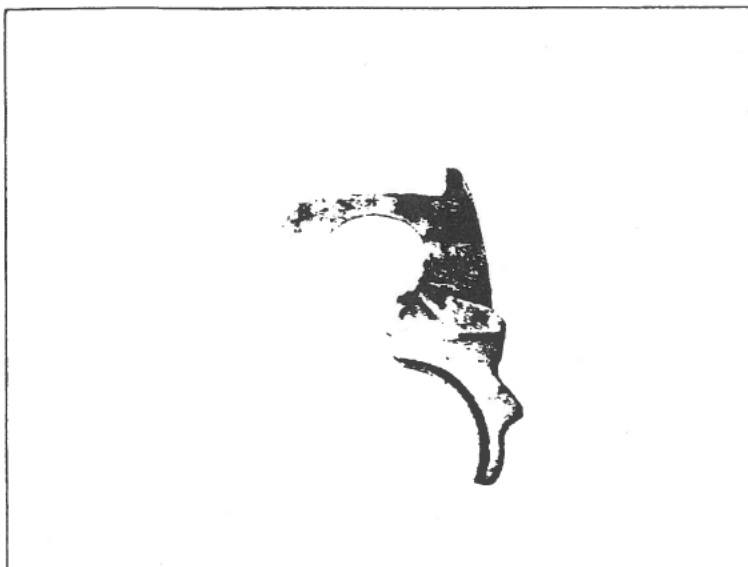
- There is no longer a bolt hold open function.
- To open the bolt, when the hammer is cocked, the lower end of the link catch needs to be pulled back. This releases the delay link and allows the bolt to be pulled back. If the hammer is cocked and the bolt is closed, the bolt is locked closed until the link catch is released.
- The action now requires "high powered" 22 long rifle ammunition to function properly. During testing of the bolt delay blowback system functioned best with CCI Stinger ammunition. The system however significantly reduces hammering of the action.

The Resetting Trigger, Semi-Automatic Trigger consists of three new components:

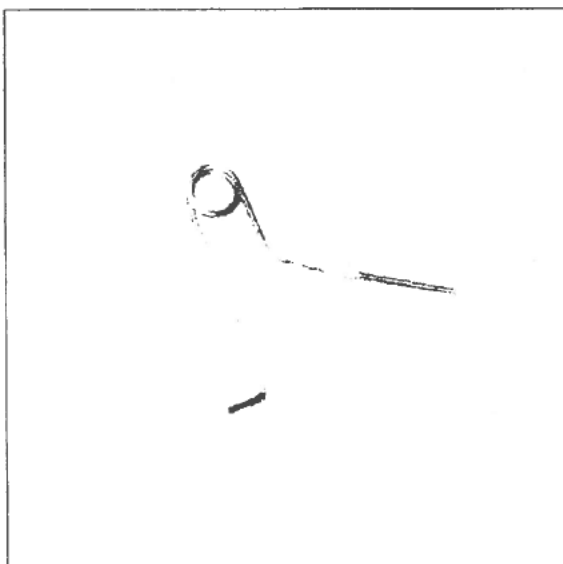
- A new trigger stop (not available to photo, to be installed at [REDACTED]).
- A new Trigger, Figure XXI.
- A new Trigger Spring Figure XXII.



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**Figure XXI – Trigger**



**Figure XXII - Trigger Spring**

Additionally, two components will be modified:

- The Bolt, Figure XXIII.
- The Sear, Figure XXIV.

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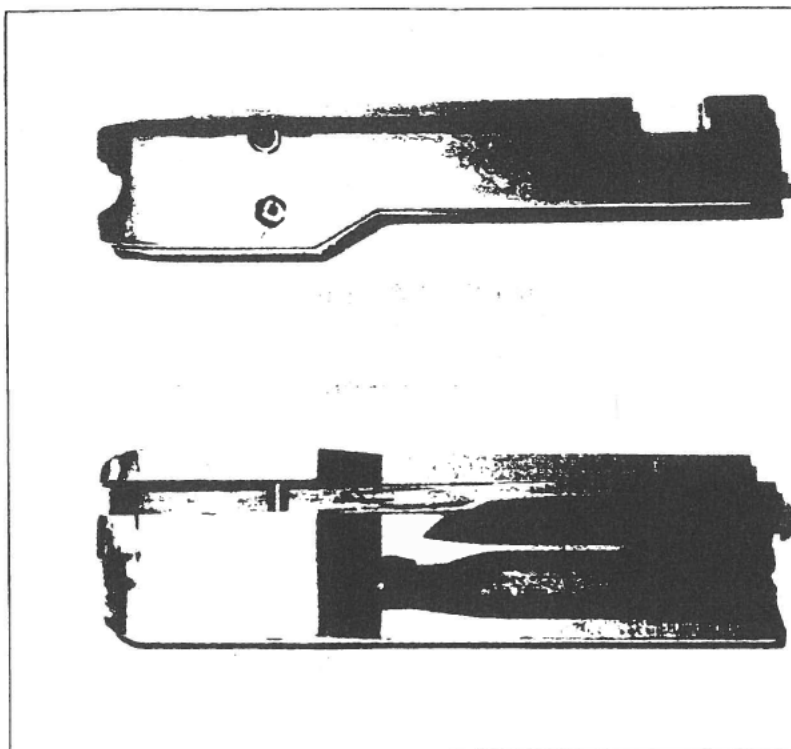


Figure XXIII - Modified Bolt

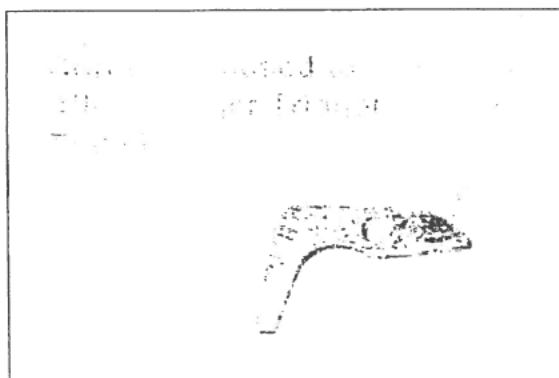


Figure XXIV - Modified Sear

The resetting trigger, semi-automatic trigger also utilizes one leg of the bolt delay link catch spring, previously shown in Figure XVII.

Function of the revised design of the Resetting Trigger, Semi-Automatic Trigger has not been changed, only part geometry.

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The trigger is still rotated back to the cocked position by drawing kinetic energy from the bolt as it travels back. This is accomplished through contact between the roll-pin in the clearance slot in the bottom of the bolt and the top projection on the new trigger. It should be noted, if the trigger is held back in the fire position and not allowed by the shooter to move forward to the cocked position, the bolt rearward travel will be stopped and the trigger will not be moved to the cocked. Under this condition, the trigger will function as the original Ruger trigger did.

Once the trigger reaches the cocked position, the trigger stop slips under the forward projection on the right side of the trigger, locking it in place, as shown by the graphic of the trigger stop in relation to the trigger, in Figure XXV.



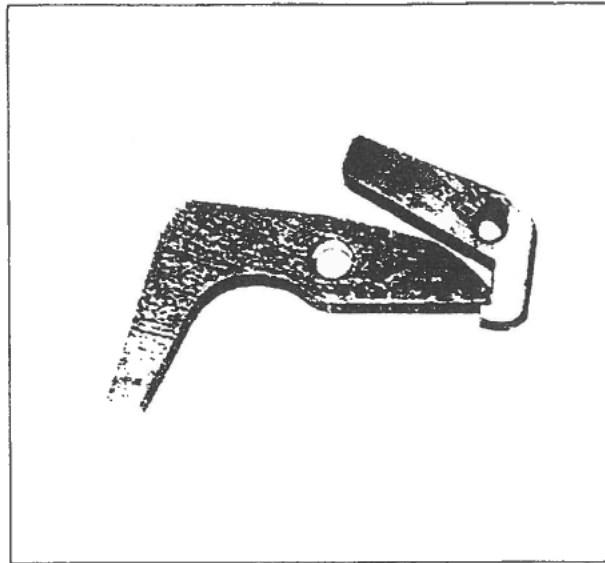
Figure XXV - Graphic Trigger Stop and Trigger

The trigger stop locks the trigger in the cocked position until the bolt closes and pushes the trigger stop forward, unlocking the trigger in the cocked position. The Trigger stop is pushed forward by the roll-pin through the clearance slot in the bottom of the bolt. Once the trigger stop is in the forward position, the trigger may be pulled the again fire the gun. This trigger system requires a single function of the trigger, the trigger being pulled to the rear to the "fire" position, from the cocked position, to fire each round whether utilizing the trigger resetting mode or the original Ruger semi-automatic mode. Only one round may be fired can be fired for each rearward movement of the trigger. A review of the individual components will verify this requirement.

Figure XXVI shows the connection between the modified sear and the original disconnecter has not changed.



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**Figure XXVI - Sear Disconnecter Interaction**

Rounding the back upper edge of the sear only allows more vertical movement of the disconnecter relative to the sear. This in turn allows more rotation of the trigger. This additional trigger rotation drove the requirement for the new trigger spring that replaces the original plunger and trigger return spring. The disconnecter still catches the back bottom edge of the sear to provide a temporary connection between the trigger and the sear. The disconnecter still releases the sear when pushed down by the protrusions on the back of the hammer per Ruger's original design.

Figure XXVI shows the sear, disconnecter, and disconnecter spring, pinned into the trigger in the same way these parts fit into the original Ruger trigger.



**Figure XXVII - Trigger With Sear & Disconnecter**

Figure XXVIII shows the relationship between the new hammer and the new trigger assembly when they are installed in the trigger housing.



**Figure XXVIII - Hammer & Trigger Assembly**

It is clearly evident only the original engages the hammer to hold it in the cocked position. It is also clear that when the hammer, when in its rear-most position will engage the disconnecter, removing the link between the trigger and sear. This link can only be reset when trigger is moved to its cocked position.

The Resetting Trigger, Semi-Automatic Trigger System is basically a normal semi-automatic trigger system with two added features:

- The ability of the moving bolt to assist the trigger return spring in returning the trigger to the cocked position.
- A trigger limiting device that only allows the trigger to be pulled, once it is in the cocked position, after the bolt has been closed.

Now I will provide instructions on how to assemble the described delayed blowback system and resetting trigger, semi-automatic trigger components in the trigger housing. I apologize that I will not be demonstrating how to install the trigger stop, that component will be installed at [REDACTED] under their Title II license, because of the possible legal issues associated with this system. I recommend careful study of the assembly prior to disassembly. If you have any questions, please feel free to contact me and I will provide any help I can.

Assembly procedure:

1. Using a .124 diameter X .500 long dummy pin to hold the sear, assemble the sear, sear /disconnecter spring, and disconnecter pin inside the trigger, in the same method used to assemble a normal Ruger 10/22 trigger
2. Place the right hammer bushing (has the washer glued to the end of the bushing) into the hammer pivot hole on the right side of the hammer and the left hammer bushing (is the shorter bushing) into the hammer pivot hole on the left side of the hammer, with the hammer washer slipped onto the bushing, riding against the left side of the hammer and the hammer bushing flange.
3. Holding the hammer assembly and trigger assembly together slide them both into the trigger housing, so the trigger protrudes into the trigger guard through the trigger hole in the bottom of the trigger housing. See Figure XXIX and Figure XXX.



Figure XXIX -Trigger & Hammer

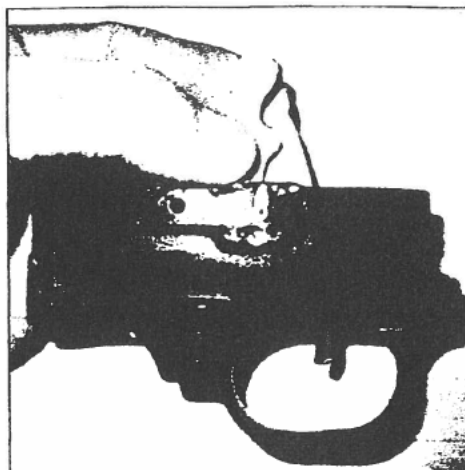


Figure XXX-Trigger & Hammer into Housing

4. Position the hammer so the holes in the housing and the holes in the hammer bushings line up and insert the Ruger hammer pin. See Figure XXXI.

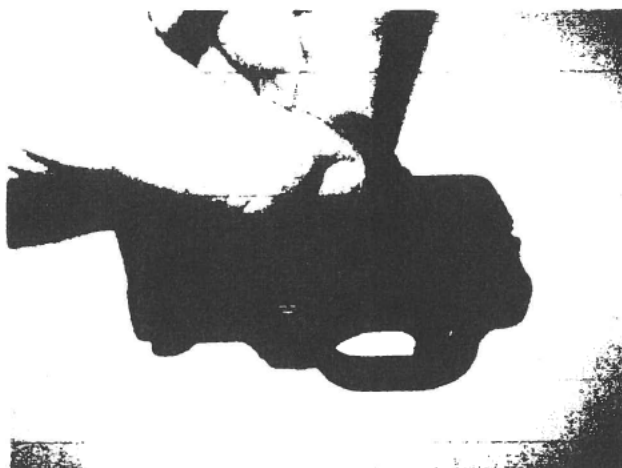
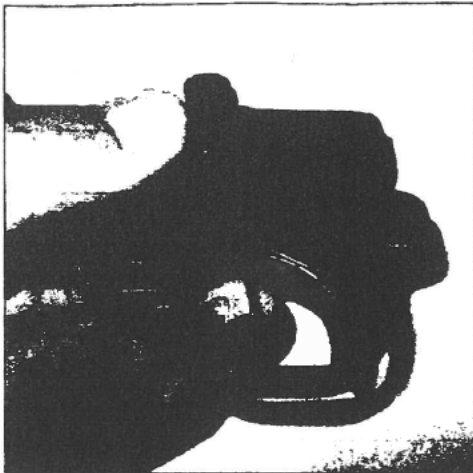


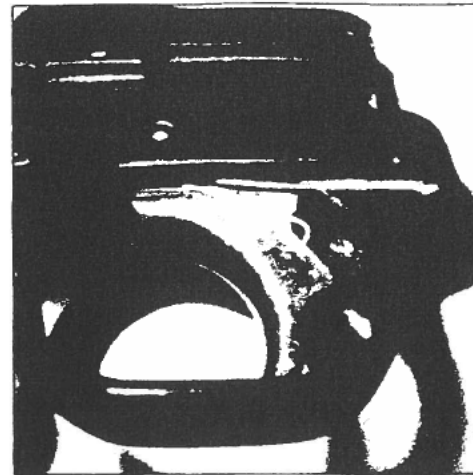
Figure XXXI - Hammer Pin Inserted

5. Line up the trigger pin hole in the trigger housing and the dummy pin in the trigger assembly. Using the Ruger trigger pin, push the dummy pin from the left side, so the dummy pin is pushed enough out the right side of the trigger housing to allow the trigger return spring to be inserted through the bottom of the trigger opening on the left side of the trigger housing. The loop of the spring should line up with the trigger pin hole. Now insert the trigger pin through the hole in the housing, the trigger return spring, the trigger assembly and into the hole on the opposite side of the housing. This should have pushed the .124 diameter x .500 dummy pin completely out of the trigger assembly and trigger housing. Place the straight trigger spring leg into the slot in the top of the trigger guard and hook the bent end around the back of the trigger. See Figure XXXII and Figure XXXIII.



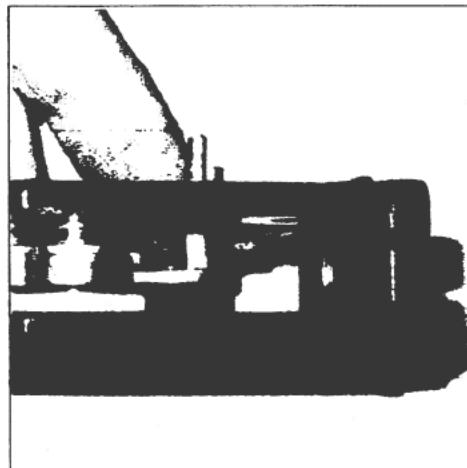


**Figure XXXII - Insert Trigger Pin**



**Figure XXXIII - Position Trigger Return Spring**

6. Slide the bolt delay link catch down through the top of the trigger housing, so the .125 diameter hole closest to the safety on the left side is lined up with the .125 diameter hole in the catch and partially insert one of the .124 diameter x .950 long pins through the hole in the left side of the housing into the link catch hole, so the link is retained. See Figure XXXIV.



**Figure XXXIV - Link Catch & Pin**

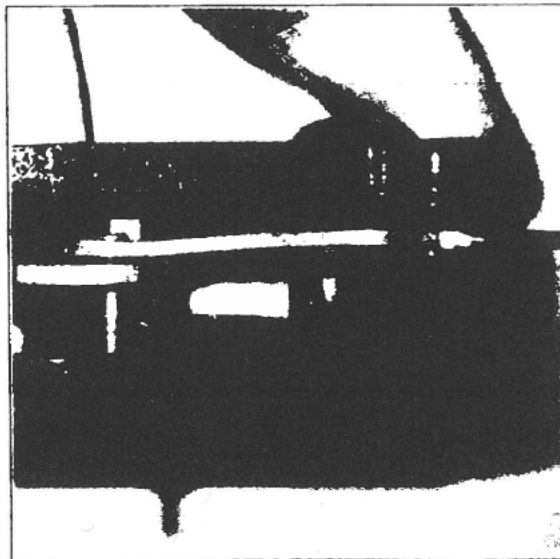
7. Load the bolt delay link catch spring down through the top of the housing until the hole through the spring coil lines up with the link catch pin and push the pin through the spring. The link catch spring should be oriented so the short leg is on the left, double leg in the center, and long leg is on the right. The leg should be pushing on the angled surface of the link catch, trying to push it into the hammer. If the trigger catch were going to be installed at this time, it would also be inserted from the top of the housing until its pivot hole aligned with the link catch pin. The pin is pushed then pushed the rest of the way through the housing so it will retain the link catch, link catch spring, and trigger stop (if the trigger stop is being installed). See Figure XXXV.

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**Figure XXXV - Link Catch, Spring, & Pin**

8. Now insert the Ruger ejector retainer pin through its hole on the right side of the trigger housing. The trigger stop (if installed) should be in front of the pin. The long leg of the link catch spring should be in the spring retaining feature of the trigger stop (if no trigger stop is installed the leg of the spring should be in front of the ejector retainer spring. Continue inserting the ejector retainer pin, as it nears the double leg of the link cat spring, the double leg should be place behind the pin. As the pin is inserted farther to the left, it should go through the curved slot in the link catch. As the pin protrudes through the link catch, the pin can be run through the ejector hole and the ejector can be rotated down so it rests in its slot. See Figure XXXVI.

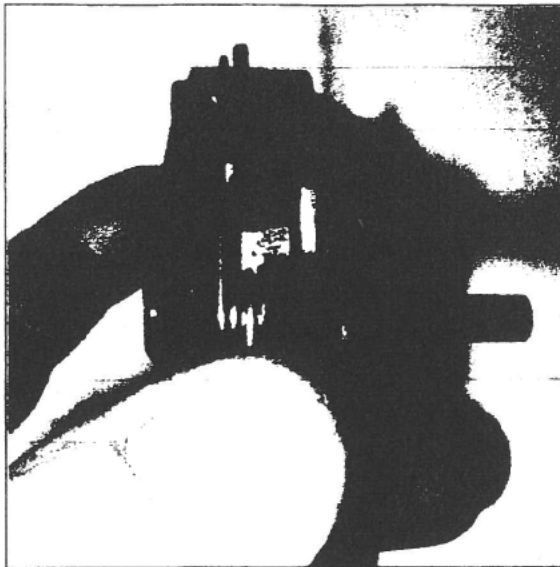


**Figure XXXVI - Ejector & Pin**

9. Insert the straight leg of the bolt delay link spring into the small hole in the back of the trigger housing. The coil of the spring should be in the large notch in the back of the trigger housing

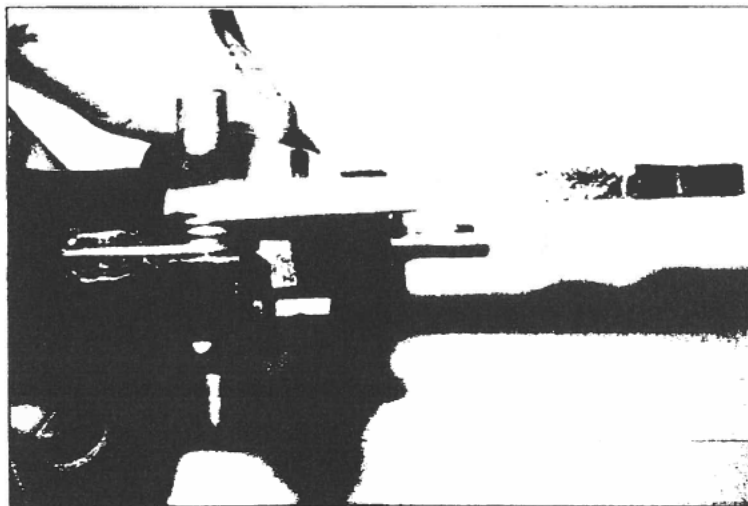
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and lined up with the trigger assembly retainer pin hole. Insert one of the trigger assembly retainer pins from the right side of the trigger housing, so it enters the spring coils far enough to retain the spring, but leaves a gap between the spring and the left side of the housing. See Figure XXXVII.



**Figure XXXVII - Delay Link Spring**

10. Slide the bolt delay link into the gap between the link spring and left side of the trigger housing, so the hole in the link lines up with the hole through the trigger housing. Now slide the trigger housing retainer pin through the link so it protrudes out the left side of the trigger housing. See Figure XXXVIII.



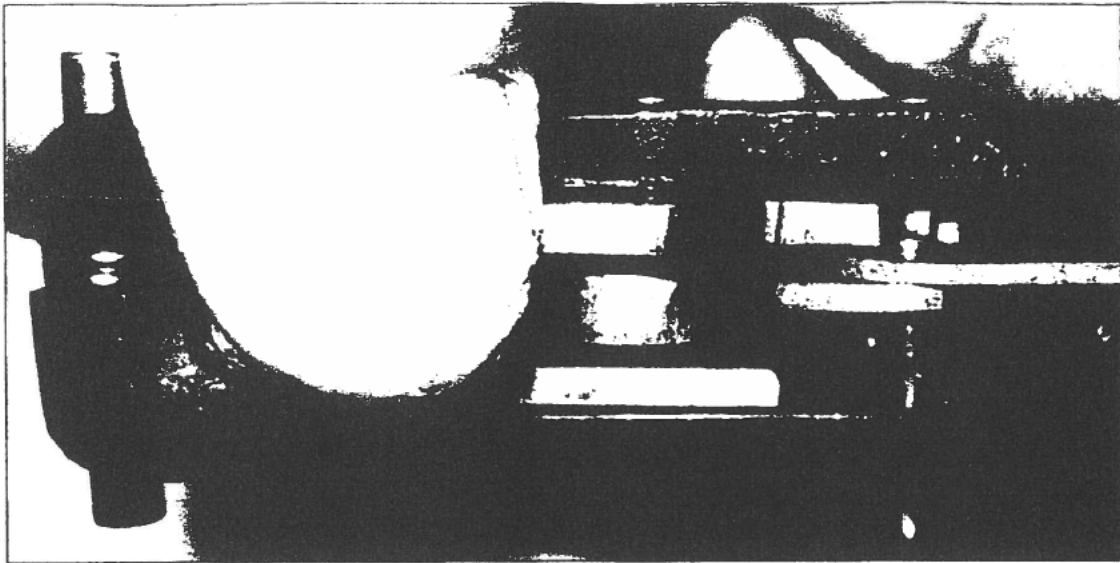
**Figure XXXVIII - Delay Link Held With Trigger Assembly Retainer Pin**

11. Rotate the bolt delay link forward until the end is under the end of the ejector retainer. Push the ejector retainer spring all the way through the housing so it holds the bolt delay link down, retains the ejector, and provides the proper tension on the link catch and trigger stop (if installed). See Figure XXXIX and Figure XL.

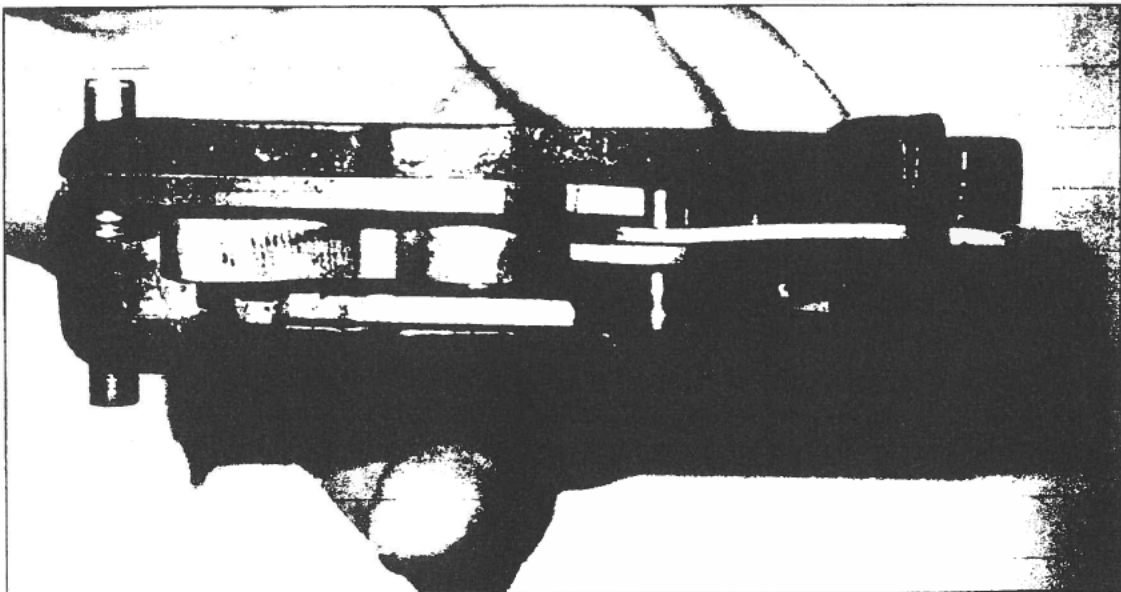


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**Figure XXXIX - Link Rotated Forward below Ejector Pin**



**Figure XL - Trigger Assembly Complete**

The trigger assembly retainer pin can now be removed for the back of the trigger assembly and the trigger assembly can be installed in the Ruger 10/22 action. Fitting of the trigger assembly into the action simplified by inserting the back retainer pin first. Then pull back the delay link catch, to release the link, rotate the trigger assembly into position, and slide in the retainer pin.

When you have completed your review, please send me a copy of the report. I believe after reviewing the trigger function you will agree that the system is still a "semi-automatic" trigger system. If the trigger system is determined to be a "semi-automatic" trigger system, I assume I can legally apply this system to other firearms with no Federal legal issues. Is this a correct assumption?

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After reviewing the results of your review, I will make arrangements for the return of my rifle.  
Thank you for your time and consideration.

Sincerely,

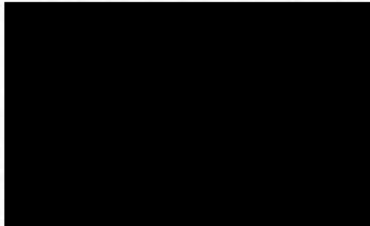




## U.S. Department of Justice

Bureau of Alcohol, Tobacco,  
Firearms and ExplosivesMartinsburg, WV 25401  
www.atf.gov903050:MRC  
3311/2006-1060  
NOV 22 2006

## BY HAND DELIVERY



Dear Mr. [REDACTED]

The Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) recently received a request from an individual to examine a device referred to as an "Akins Accelerator." Because your company is manufacturing and distributing the device, we are contacting you to advise you of the results of our examination and classification.

The National Firearms Act (NFA), Title 26 United States Code (U.S.C.) Chapter 53, defines the term "firearm" to include a machinegun. Section 5845(b) of the NFA defines the term "machinegun" as follows:


*...any weapon which shoots, is designed to shoot, or can be readily restored to shoot, automatically more than one shot, without manual reloading, by a single function of the trigger. The term shall also include the frame or receiver of any such weapon, any part designed and intended solely and exclusively, or combination of parts designed and intended, for use in converting a weapon into a machinegun, and any combination of parts from which a machinegun can be assembled if such parts are in the possession or under the control of a person.*

Machineguns are also regulated under the Gun Control Act of 1968 (GCA), 18 U.S.C. Chapter 44, which defines the term in the same way as in the NFA. 18 U.S.C. § 921(a)(23). Pursuant to 18 U.S.C. § 922(o), machineguns manufactured on or after May 19, 1986, may only be manufactured for and distributed to Federal, State, and local government agencies for official use.

The Firearms Technology Branch (FTB) examination of the submitted item indicates that the Akins Accelerator is an accessory that is designed and intended to accelerate the rate of fire for Ruger 10/22 semiautomatic firearms. The Akins Accelerator device, which is patented, consists of the following metal block components (also see enclosed photos):

ATF 0641



- 
- Block 1: A metal block that replaces the original manufacturer's V-Block of the 10/22 rifle. The replacement block has two rods attached that are approximately ¼ inch in diameter and approximately 6 inches in length.
  - Block 2: A metal block that is approximately 3 inches long, 1-3/8 inches wide, and ¾ of an inch high that has been machined to allow the two guide rods to pass through. Block 2 serves as a support for the guide rods and as an attachment to the stock.

As received, the Akins Accelerator utilizes the following parts and features to facilitate assembly:

- Assembly of Block 1 to Block 2: These blocks are assembled using ¼ inch rods, metal washers, rubber and metal bushings, two collars with set screws, one coiled spring, C-clamps, and a split ring.
- Apertures for Attachment of Stock: Block 2 is drilled and tapped for two 10-24 NC screws. These threaded holes allow the attachment of the Akins device with Ruger 10/22 barreled receiver to the composite stock that is a component part of the Akins device.

The composite stock is designed for a Ruger 10/22 barrel and receiver. This stock permits the entire firearm (receiver and all its firing components) to recoil a short distance within the stock when fired. Rearward pressure on the trigger causes the firearm to discharge, and as the firearm moves rearward in the composite stock, the shooter's trigger finger contacts the stock. The trigger mechanically resets, and the accelerator, which has a coiled spring located forward of the firearm receiver, is compressed. Energy from this accelerator spring subsequently drives the firearm forward into its normal firing position and, in turn, causes the trigger to contact the shooter's trigger finger, so long as the shooter maintains finger pressure against the stock, making the weapon fire again. The Akins device assembled with a Ruger 10/22 is advertised to fire approximately 650 rounds per minute.

For testing purposes, FTB personnel installed a semiautomatic Ruger 10/22 rifle from the National Firearms Collection into the stock, with the Akins device attached. Live-fire testing of the Akins Accelerator demonstrated that a single pull of the trigger initiates an automatic firing cycle that continues until the finger is released, the weapon malfunctions, or the ammunition supply is exhausted.

In order to be regulated as a "machinegun" under Section 5845(b), conversion parts must be designed and intended to convert a weapon into a machinegun, i.e., a weapon that shoots automatically more than one shot, without manual reloading, by a single function of the trigger. Legislative history for the National Firearms Act indicates that the drafters equated "single function of the trigger" with "single pull of the trigger." National Firearms Act: Hearings Before the Comm. on Ways and Means, House of Representatives, Second Session on H.R. 9066, 73<sup>rd</sup> Cong., at 40 (1934). Accordingly, it is the position of this agency that conversion parts that are designed and intended to convert a weapon into a machinegun, that is, one that will

-3-

[REDACTED]

shoot more than one shot, without manual reloading, by a single pull of the trigger, are regulated as machineguns under the National Firearms Act and the Gun Control Act.

We note that by letters dated November 17, 2003, and January 29, 2004, we previously advised you that we were unable to test-fire a prototype of the Akins device that you sent in for examination. However, both letters state that the theory of operation is clear, and because the device is not a part or parts designed and intended for use in converting a weapon into a machinegun, it is not a machinegun as defined under the National Firearms Act. The previous classification was based on a prototype that fractured when this office attempted to test fire it. Nonetheless, the theory of operation of the prototype and the Akins Accelerator is the same. To the extent the determination in this letter is inconsistent with the letters dated November 17, 2003, and January 29, 2004, they are hereby overruled.

Manufacture and distribution of the Akins Accelerator device must comply with all provisions of the NFA and the GCA. Accordingly, any devices you currently possess must be registered in accordance with 26 U.S.C. § 5822 and regulations in Part 27 Code of Federal Regulations (C.F.R.). § 479.103. If you do not wish to register the devices, they should immediately be abandoned to the nearest ATF Office. You may contact the Portland field office at [REDACTED] to arrange for abandonment of the weapons. Pursuant to 18 U.S.C. § 922(o), the devices may only be manufactured for and distributed to Federal, State, and local law enforcement agencies. In addition, the devices must be marked in accordance with 18 U.S.C. § 923(i), 26 U.S.C. § 5842, 27 C.F.R. § 478.92, and 27 C.F.R. § 479.102. If you have questions about any of these provisions of law, please contact Acting Assistant Chief [REDACTED] in the Firearms Programs Division at [REDACTED].

Sincerely yours,

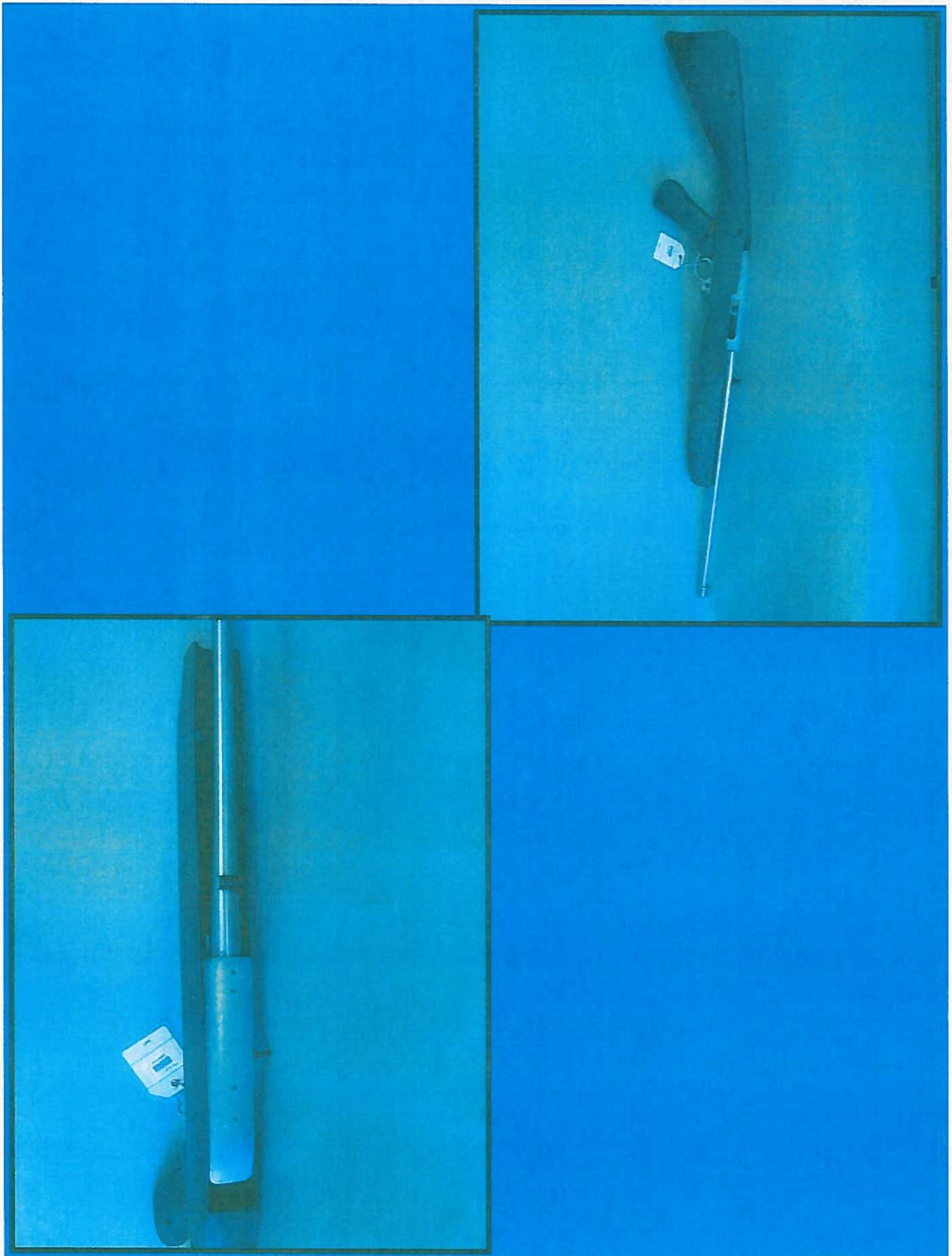
  
Richard Vasquez  
Assistant Chief, Firearms Technology Branch

cc: SAC, Seattle Field Division  
DIO, Seattle Field Division  
Division Counsel, Seattle  
Assistant Chief Counsel, San Francisco

Enclosures

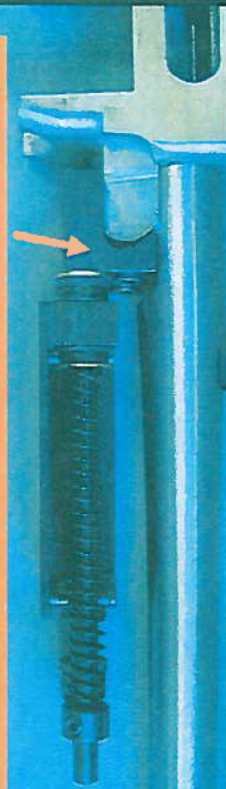
ATF 0643





ATF 0644





Metal block 1 replaces the Ruger V-block



Metal block 2



Drilled and tapped for 10-24 NC screws